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(54) Title: A DC/DC VOLTAGE REGULATOR WITH AUTOMATIC CURRENT SENSING SELECTABILITY FOR LINEAR AND SWITCH MODE OPERATION UTILIZING A SINGLE VOLTAGE REFERENCE

(57) Abstract: A switch-mode DC/DC converter (101) and linear low drop out (LDO) DC/DC regulator (105) are connected in parallel to drive a single load. Both regulators share a common voltage reference, feedback network (103), input supply and output such that the regulated voltage is identical during each mode of operation. During heavy loads the switch-mode regulator (107) is in operation and the linear regulator is disabled for the highest efficiency possible. Conversely at light loads the linear regulator is in operation with the switch-mode regulator (107) disabled, also maximizing the efficiency. Each regulator senses load current (131) to automatically transition between the appropriate voltage regulators at fixed load current levels. The presented invention also includes a make before break transition scheme of the voltage regulators (103) to minimize the voltage transients.



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